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Journal Club - Evidence Synthesis and Research Discussion

Practical 1 - Supervised research activity guide

Aim

To critically appraise a research paper and present its relevance to the dissertation topic.

Principle

Critical appraisal asks whether the study question, design, conduct, analysis and interpretation support the claim. Journal prestige and a small p value do not replace assessment of bias, magnitude and uncertainty.

Materials and Requirements

- Approved research topic or open-access paper and study records
- Supervisor guidance, institutional ethics/safety requirements and assessment rubric
- Research notebook, analysis plan and presentation tools
- Approved method or teaching-data pack and a dated record sheet

Procedure

1. Define the preparation or dataset, study question and method version. Record identities, units and the criteria to be used before examining the outcome.
2. Define the research question, activity stage, evidence sources and deliverable with the supervisor. Keep supplied originals and a dated record of decisions.
3. Select a relevant primary study and formulate the population/material, intervention/exposure, comparator and outcome question where applicable.
4. Summarise design, selection, sample-size rationale, controls, allocation/blinding and the experimental unit.
5. Appraise primary outcomes, effect sizes, intervals, missing data, multiplicity, adverse findings and reporting against the appropriate study-design framework.
6. Prepare a concise presentation separating the authors findings, your appraisal and relevance to the proposed research; lead a discussion with two unresolved questions.
7. Check scientific accuracy, traceability, authorship and confidentiality. Record limitations and obtain the appropriate academic review before dissemination.
8. Retain the original observations and calculations. State deviations, missing information and the limits of the conclusion; do not replace measured values with expected results.

Observations and Record

Enter actual measurements or the supplied teaching data. Record the method, material identity, conditions and units.

Task / evidence	Planned method / criterion	Completed record	Review / next action
Scientific question	Define	Record	Assess
Methods / evidence	Justify	Record	Assess
Analysis / communication	Predefine	Record	Assess

Worked Example

Illustrative effect estimate is a 2-unit improvement with 95% CI from -1 to 5. The interval is compatible with no difference and some benefit; it does not establish either equivalence or a clinically important effect.

Check whether the endpoint and smallest meaningful difference were defined before the study.

Stage-specific deliverable

• Semester 4: compare the selected paper with additional relevant primary evidence and the dissertation findings. Explain agreements, conflicts, design differences and remaining questions.

Result and Interpretation

• Deliver a one-page appraisal, an evidence table and a structured oral presentation with strengths, limitations and research implications.

Precautions

• Do not fabricate observations, approvals, participant records or citations.
• Use the appropriate permissions for human, animal, biological or confidential work.
• Distinguish exploratory analysis from prespecified confirmatory analysis.

Viva Questions and Answers

Does p < 0.05 prove a large effect?

It does not state effect magnitude or clinical importance.

Why identify the experimental unit?

The analysis must reflect independent observations.

Does a nonsignificant result prove equivalence?

Equivalence needs a suitable design and prespecified interval-based assessment.

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